Name: _____

Some review for Q1 Quarter Exam. Be sure to review your notes, homework, and tests as well.

1) Simplify: $\sqrt{96}$

2) Simplify: $6\sqrt{54} - 3\sqrt{24} - 8\sqrt{96}$

A) $-8\sqrt{6}$ B) $-20\sqrt{6}$ C) $10\sqrt{6}$ D) $3\sqrt{30} - 8\sqrt{6}$

3) Simplify: $-\sqrt{6}(2\sqrt{6} - 4\sqrt{2})$

4) Simplify: $\dfrac{\sqrt{10} - 8}{4 + \sqrt{10}}$

A) $5 - 4\sqrt{10}$ B) $\dfrac{-2\sqrt{10} - 11}{7}$ C) $2\sqrt{10} - 7$ D) $-\dfrac{\sqrt{10}}{2}$

5) The expression $(-3x^2y^3)^3$ is equivalent to

A) $-3x^5y^6$ B) $-27x^6y^9$ C) $-27x^5y^6$ D) $-9x^6y^9$

6) Simplify: $3x^0$

7) Simplify and express with positive exponents: $(2b^{-3})^{-2}$

8) Evaluate: $\left(\dfrac{9}{49}\right)^{-\frac{3}{2}}$

A) $-\dfrac{343}{27}$ B) $-\dfrac{27}{343}$ C) $\dfrac{343}{27}$ D) $\dfrac{27}{343}$

9) Express with rational exponents: $\sqrt[3]{x^2y^4}$

10) Express with rational exponents: $\sqrt[4]{ab^3}$

11) The expression $3\sqrt{-18} + 5\sqrt{-12}$ is equivalent to

A) $19i\sqrt{5}$ B) $6i\sqrt{2} + 7i\sqrt{3}$ C) $-90\sqrt{6}$ D) $9i\sqrt{2} + 10i\sqrt{3}$

12) The value of $2i^{\,8}$ is

A) 2 B) -2 C) $-2i$ D) $2i$

13) Find the multiplicative inverse of $-4 + 3i$.

14) Simplify in $a + bi$ form: $(2 + i)(3 - 6i)$

15) What is $\frac{2+i}{3+i}$ expressed with a rational denominator?

A) $\frac{7-5i}{10}$ B) $\frac{6+i}{8}$ C) $\frac{6+5i}{8}$ D) $\frac{7+i}{10}$

16) Find the magnitude of $z$ where $z = 6 - 3i$.

A) 45 B) 9 C) 3 D) $3\sqrt{5}$

17) In which quadrant does the sum of $(2 + 3i)$ and $(-1 - 6i)$ lie?

A) *I* B) *II* C) *III* D) *IV*

18) Solve: $16^{3x} = 8^{x+1}$

19) Solve: $4x^{\frac{1}{5}} + 2 = 10$

20) Factor completely: $x^4 - 81y^4$

A) $(x + 3y)(x - 3y)(x^2 + 9y^2)$ C) $(x + 3y)(x - 3y)(x + 3y)^2$

B) $(x^2 - 9y^2)(x^2 + 9y^2)$ D) $(x + 3y)(x - 3y)^2(x + 9y)^2$

21) Which of the following correctly shows the factoring of $x^3 + 27$?

A) $(x + 3)(x^2 + 3x - 9)$ B) $(x + 3)(x - 3)(x - 3)$ C) $(x + 3)(x^2 - 3x + 9)$ D) $(x + 3)(x + 3)(x + 3)$

22) Write an expression to represent $27x^3 - 8$ when factored completely.

23) Factor: $ac - ad + 2bc - 2bd$

24) Factor: $3x^2 + 7x + 2$

25) Factor: $3a^2 - 2ab - b^2$

26) What is the solution set of the equation $\sqrt{5 - x} + 3 = x$?

A) {4} B) {4, 1} C) {1} D) { }

27) Solve for $x$: $\sqrt[3]{2x - 5} = 3$

A) 7 B) -16 C) 16 D) ⌀

28) Find the solution to the equation $\sqrt{y^2 + 2} = y - 1$.

29) For what value(s) of $x$ is $\frac{4}{x^2 - 9}$ undefined?

A) +3 and -3, only B) +3, only C) +3, -3, and 0 D) -3, only

30) For what value(s) of $x$ is $\frac{2x+3}{4}$ undefined?

31) For all values of $z$ for which the expression is defined, the expression $\frac{3z^2 - 12z}{4z^2 - z^3}$ is equivalent to

A) $\frac{3}{4} - \frac{12}{z^2}$ B) $-\frac{3}{z}$ C) $-\frac{9}{4}$ D) $\frac{3}{z}$

32) Simplify: $\frac{24s^2 - 2s - 1}{6s + 1}$

33) As a fraction in lowest terms when $b \neq 1$, the expression $\frac{6}{b-1} \cdot \frac{5-5b}{10}$ is equivalent to

A) $-\frac{1}{3}$ B) $\frac{3}{5}(1-b)$ C) $3(b-1)$ D) -3

34) What is the quotient when $18y^{12} - 9y^6 + 3y^3$ is divided by $3y^3$?

A) $6y^4 - 3y^2 + 1$ B) $6y^9 - 3y^3$ C) $6y^4 - 3y^2$ D) $6y^9 - 3y^3 + 1$

35) Simplify: $\frac{x-4}{2x^2 - 7x + 3} \div \frac{3x - 12}{5x^2 - 45}$

36) What is the sum of $\frac{3}{x-3}$ and $\frac{x}{3-x}$?

A) -1 B) $\frac{x+3}{x-3}$ C) 1 D) 0

37) Combine and simplify: $\frac{4}{z^2 - 4} + \frac{3}{2z - z^2}$

38) Combine and simplify: $\frac{4}{x^2 + 4x - 5} - \frac{3}{x^2 - 1}$

39) Simplify: $\frac{x^{-1} - 1}{x - 1}$

A) $\frac{1}{x^2}$ B) $-\frac{1}{x}$ C) $-x$ D) $\frac{1}{x}$

40) Simplify: $\frac{1 + \frac{1}{c} - \frac{20}{c^2}}{1 + \frac{4}{c} - \frac{5}{c^2}}$

41) Simplify: $\dfrac{\dfrac{3}{w-x} - \dfrac{3}{w+x}}{\dfrac{6}{w^2 - x^2}}$